



Purpose

To provide information for farmers to voluntarily target resources for management practices that will yield the greatest level of reduced nitrogen contamination potential for groundwater by identifying the fields of highest intrinsic vulnerability.

Where to find the Hazard Index

The Nitrate Groundwater Pollution Hazard Index is a web-based system developed with support from the USDA-CSREES Southwest States and Pacific Islands Regional Water Quality Program. The system is hosted at the University of California Center for Water Resources web site, www.waterresources.ucr.edu, under the Water Quality Program link at the top of the page, or use the Hazard Index link on the right side of the page.

How to use the Hazard Index

The Nitrate Groundwater Pollution Hazard Index works with an overlay of soil, crop, and irrigation information. Based on the three components, an overall potential hazard number is assigned and management practices are suggested where necessary.

When at the Hazard Index Search page, simply find/enter your crop (enter the first letter, then scroll down the list to find your crop), then do the same for your soil and irrigation method. When information is entered, click on the “Search” button. This will take you to a new page where you will find your Hazard Index number and information about why each factor was rated as it was.

Additional information can be found by following the links provided on the page.

Background

The United States Congress appropriated funds to the US Geological Survey (USGS) to begin the National Water Quality Assessment (NWQA) Program in 1991. As part of this program, the USGS published “The Quality of Our Nation’s Waters” in 1999, which made specific reference to nutrients and pesticides.

Considering only the nitrogen issues from the report, some of the highest levels of contamination were reported to occur in streams and groundwater in agricultural areas. However, differences in natural features and land management practices make fresh waters in some areas more vulnerable to contamination than other areas.

Some factors contributing to the vulnerability of groundwater to contamination, such as hydrologic properties of the soil, are beyond the control of the farmer, while others, such as the quantity and timing of irrigation and fertilization, are functions of management.

To assess the vulnerability of a specific site, an overlay of factors, each with their own hazard rating, can be used. Factors considered in this method are: soil type, crop, and irrigation system. Soil type is rated on a scale of 1 to 5; crops from 1 to 4; and irrigation from 1 to 4.

In each case, the relative hazard potential is lowest at an index of 1 and increases from there. By multiplying the values from each factor, the final hazard index number can range from 1 to 80.

Although the details are different, this approach is consistent with that recommended by the Nutrient Technical Advisory Committee (TAC) appointed by the California State Water Resources Control Board, to propose a nutrient management approach designed to meet the varied interests of those who rely on clean water.

This material is based upon work supported by the Cooperative State Research, Education, and Extension Service, U.S. Department of Agriculture, under Agreement No. 2002-51130-01976.

Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the authors and do not necessarily reflect the view of the U.S. Department of Agriculture.



The CSREES Southwest States and Pacific Islands Regional Water Quality Program works to improve water quality management through educational knowledge and extension programming that emerges from a research base. The program builds on the strengths of the Extension Water Quality Programs at the Land Grant Universities throughout the Southwest and Pacific Islands.